



## REMR MATERIAL DATA SHEET CM-CR-1.6

### EPOXY RESIN SYSTEM FOR DORMANT CRACK REPAIR: FLEXOLITH

## 1. NAME

Flexolith

## 2. MANUFACTURER

Dural International Corporation  
95 Brook Avenue  
Deer Park, New York 11729  
Telephone: 516-586-1655

## 3. DESCRIPTION

Flexolith epoxy is a low viscosity, low-modulus, high early strength epoxy mortar binder for overlays and horizontal patching. It is a 100 percent solids, moisture-insensitive, two-component epoxy suitable for application at temperatures as low as 30 °F.

## 4. APPLICABLE SPECIFICATION

Flexolith meets ASTM C 881-73  
Type III, Grade I, Class A, B, C.

## 5. USES

Flexolith can be used when rapid strength development or low-temperature applications are desired. It is used for skid-resistant overlays for concrete and steel decks, epoxy mortar overlays for steel grid and concrete decks, patching horizontal and vertical surfaces, and sealing cracks when stress relief is required.

## 6. MANUFACTURER'S TECHNICAL DATA

Physical properties:

Color, Part A (base)	Amber
Part B (hardener)	Amber
Mixing ratio, A:B by vol	2:1
Mixed viscosity @ 75 °F, cp	700-1,000
Pot life, min (AASHTO T-237)	15-30

Performance properties:  
(at 75 °F)

Initial cure, hr (7 days at 75 °F)	3-5
Tensile strength, psi (ASTM D 638)	2,000 min
Tensile elongation, % (ASTM D 638)	30 min
Tensile modulus, psi (ASTM D 638)	90,000- 130,000
Compressive strength, psi (ASTM D 695)	5,000 min
Compressive modulus, psi (ASTM D 695)	90,000- 130,000
Compressive strength, psi (mortar with 3 parts sand) (ASTM C 109)	5,000 min

## 7. MANUFACTURER'S GUIDANCE FOR APPLICATION

Surface preparation: Remove all dirt, grease, oil, soap, detergents, and other contaminants and coatings which can prevent proper adhesion to the surface. Do not allow the use of curing compounds on new concrete. If such a compound has been used, remove it thoroughly. Remove loose particles and weak sections. Remove asphalt and oil contaminants with detergent and thoroughly rinse with water, or sand-blast or mechanically scarify and vacuum. Mask off expansion joint sealers within the joint limits to prevent their being coated with epoxy.

Mixing: Premix Part A and Part B.

Binder: Combine Part A (base) and Part B (hardener) 2:1 by volume, and mix thoroughly with electric drill and paddle. Do not mix materials at temperatures below 50 °F.

Mortar: Mix Parts A and B as in Binder, and then add aggregate gradually while mixing. Mix thoroughly. Use a 1:3 (Binder to aggregate) ratio. Aggregate can be varied, depending on desired consistency.

### Application:

Skid-resistant overlay: Apply Binder to clean surface with a squeegee at the required rate. Go over the epoxy lightly with a roller to create a uniform coating and eliminate any puddles. Allow 5 min to elapse. Before Flexolith sets, broadcast aggregate.

Allow the system to cure, and repeat the process. For bridge decks, a third coat should be applied.

Aggregate: Dural recommends Basalt, an aggregate containing at least 10 percent aluminum oxide, for heavy-duty applications. For light applications, Dural Quartz aggregate can be used.

Patching and mortar overlay: Prime surface with premixed Binder (no sand). Allow 15 min at 75 °F to elapse, and apply epoxy mortar with trowel or screed.

Vertical and overhead installations: Flexolith Gel is recommended for these applications.

### Coverage:

Skid-resistant overlay:

	Flexolith	Aggregate
First coat	40 sq ft/gal	8-10 lb/sq yd
Second coat	25 sq ft/gal	12-14 lb/sq yd
Third coat (optional)	25 sq ft/gal	12-14 lb/sq yd

Mortar: 2.6 gal of Flexolith mixed with 8 gal of aggregate will yield 1 cu ft of epoxy mortar.

Priming: 100 sq ft/gal

Caution: Flexolith contains alkaline amine. Avoid contact with skin or eyes. In case of contact, wash skin with soap and water. Flush eyes immediately with water and see a doctor. If Flexolith is used indoors, provide adequate ventilation.

## 8. CORPS OF ENGINEERS' EVALUATION

Flexolith was one of eight adhesives selected for evaluation in REMR Work Unit 32308. Results of this study are reported in Technical Report REMR-CS-11, "In Situ Repair of Deteriorated Concrete in Hydraulic Structures: Laboratory Studies," Jan 1988. After selected physical properties of Flexolith were determined, the adhesive was used to inject cracked concrete slabs. The effectiveness of the repairs was evaluated by means of preinjection and postinjection ultrasonic pulse velocity measurements, by visual examination of cores removed from each slab,

and by splitting tensile strength tests done on discs cut from the cores removed from the repaired slabs.

Viscosity, cp        700-1,000  
 (at 25 °C)

Gel time, min        13-18

Slant shear bond strength, psi  
 (ASTM C 882)

Air-dried concrete	>2968
Water-saturated concrete	402

Air- dried <u>Concrete</u>	Water- saturated <u>Concrete</u>
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Ultrasonic pulse  
 velocity, fps

Preinjection	10,123	11,058
Postinjection	14,223	15,050

Splitting tensile strength*, psi	500	591
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\* Uncracked, air-dried concrete had a splitting tensile strength of 616 psi.

## 9. ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of activities involving potentially hazardous and toxic chemical substances. Manufacturer's recommendations to protect occupational health and environmental quality should be carefully followed. Material safety data sheets must be obtained from the manufacturers of such materials. In cases where the effects of a chemical substance on occupational health or environmental quality are unknown, chemical substances should be treated as potentially hazardous toxic materials.